

REMARKS

This communication responds to the Office Action mailed on December 14, 2006. No claims are amended, claims 13 and 27 have been canceled, and no claims are added. As a result, claims 1-12, 14-26, and 28-30 are now pending in this Application. Claims 23-26 and 28-30 have been withdrawn from consideration.

§112 Rejection of the Claims

Claims 14-22 were rejected under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. The Office asserts that the "... term 'circuit package' in claim 14 is unclear and renders the claims vague and indefinite. It is unclear what structure is meant by 'package.'" In response to this rejection under 35 USC § 112, second paragraph, the Applicant respectfully notes that no *prima facie* case of indefiniteness has been established, and therefore, the Applicant respectfully traverses this rejection.

To make out a *prima facie* case of indefiniteness, three elements must be shown: interpretation of the claim in light of the specification; interpretation of the claim as one of ordinary skill in the art would interpret it; and that the limitations in the claim, or the subject matter not in the claim, does not reasonably define the invention. It is noted that "[in] relation to Section 112, second paragraph, the Examiner has the burden of showing that the proposed claim language is indefinite to one of skill in the art." See Patent Prosecution: Practice and Procedure Before the U.S. Patent Office by Irah H. Donner, pg. 831, 2002. This type of showing has not been made.

Indeed, the term "circuit package" is well known to those of ordinary skill in the art. Many types are commonly available. A partial listing of these, along with some diagrams illustrating a variety of circuit package components, is included in Appendix A "Integrated Circuit Package Types And Thermal Characteristics," attached to the end of this document.

One of ordinary skill in the art would have no difficulty in determining the content of the claimed subject matter (i.e., a heat source comprising a circuit package), as well as its limitations. Therefore, since no *prima facie* case of indefiniteness has been established, reconsideration and withdrawal of the rejection of claims 14-22 under 35 USC § 112, second paragraph, is respectfully requested.

§102 Rejection of the Claims

Claims 1-4, 7-10, 14-15, and 17-22 were rejected under 35 USC § 102(b) as being anticipated by Frescura et al. (U.S. 3,590,328; hereinafter “Frescura”). The Applicant does not admit that Frescura is prior art and reserves the right to swear behind this reference at a later date. In addition, because the Applicant asserts that a *prima facie* case of anticipation has not been established, the Applicant traverses this rejection of the claims.

It is respectfully noted that anticipation under 35 USC § 102 requires the disclosure in a single prior art reference of each element of the claim under consideration. *See Verdegaal Bros. V. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ 2d 1051, 1053 (Fed. Cir. 1987). It is not enough, however, that the prior art reference discloses all the claimed elements in isolation. Rather, “[a]nticipation requires the presence in a single prior reference disclosure of each and every element of the claimed invention, *arranged as in the claim.*” *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 221 USPQ 481, 485 (Fed. Cir. 1984) (citing *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 220 USPQ 193 (Fed. Cir. 1983)) (emphasis added). “The *identical invention* must be shown in as complete detail as is contained in the ... claim.” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989); MPEP § 2131 (emphasis added).

The Office asserts that Frescura discloses “a heat source comprising a circuit (col. 2, lines 24), a heat sink (col. 2, lines 16-17) and a unitary layer of electrically non-conductive material (col. 3, line 10) having a first surface adjacent the heat sink, [and a] second surface adjacent the heat source (figures 2 and 3) ...”. However, a careful reading of Frescura reveals that this assertion is incorrect – Frescura actually teaches that the second surface of the unitary layer is *not* adjacent the heat source.

In FIG. 1 of Frescura, it can be seen that a module 11 includes an integrated circuit chip 17 and an aluminum plate member 13. *See* Frescura, FIG. 1 and Col. 2, lines 15-25. As shown in FIG. 2, “overlying the substrate 13 is a thin insulating film 41.” Frescura, Col. 1, lines 2-3. “The film 41 also includes a central cutout 45 which exposes a portion of the substrate 13. On this exposed portion, there is mounted a metallic pad 47 having attached thereto the integrated circuit 17.” Frescura, Col. 3, lines 5-9.

While one surface of the film 41 (e.g., the first surface) may be adjacent the substrate 13

(e.g., a heat sink), the other surface of the film 41 (e.g., the second surface) is not adjacent the integrated circuit 17 (e.g., the heat source). In fact, as clearly shown in FIGs. 1 and 2, there is a central cutout 45 that is larger than the integrated circuit 17 and contact points 21 surrounding it. This large open area is necessary to accommodate the module 11 assembly process. That is, the module 11 is assembled by first bonding the substrate 13, film 41, and a conductor pattern 49 together. See Frescura, Col. 4, lines 39-45. Then the pad 47, with the integrated circuit 17 attached to it, is positioned on the substrate 13 and “scrubbed back and forth and finally cooled to form a bond.” See Frescura, Col. 5, lines 30-35.

In other words, it is impossible for the film 41 to have “a second surface adjacent the heat source” because this would prevent assembly of the module 11 as described by Frescura. In addition, all of the figures plainly show that the edges of the cutout 45 in the film 41 do not touch any part of the integrated circuit 17.

Independent claims 1 and 14 (as well as all claims depending from them) recite “a second surface adjacent the heat source,” which is not what is shown by Frescura. Therefore, since Frescura does not teach the identical invention claimed, no *prima facie* case of anticipation has been established, and claims 1-4, 7-10, 14-15, and 17-22 should be in condition for allowance. Reconsideration and withdrawal of the rejection of these claims under § 102 is respectfully requested.

§103 Rejection of the Claims

Claims 5-6, 11-12, and 16 were rejected under 35 USC § 103(a) as being unpatentable over Frescura. Since a *prima facie* case of obviousness has not been established, the Applicant respectfully traverses this rejection.

The Examiner has the burden under 35 U.S.C. § 103 to establish a *prima facie* case of obviousness. *In re Fine*, 837 F.2d 1071, 1074, 5 U.S.P.Q.2d (BNA) 1596, 1598 (Fed. Cir. 1988). The M.P.E.P. contains explicit direction to the Examiner in accordance with the *In re Fine* court:

In order for the Examiner to establish a *prima facie* case of obviousness, three base criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art

reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *M.P.E.P.* § 2142 (citing *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d (BNA) 1438 (Fed. Cir. 1991)).

The requirement of a suggestion or motivation to combine references in a *prima facie* case of obviousness is emphasized in the Federal Circuit opinion, *In re Sang Su Lee*, 277 F.3d 1338; 61 U.S.P.Q.2D 1430 (Fed. Cir. 2002), which indicates that the motivation must be supported by evidence in the record.

No proper *prima facie* case of obviousness has been established because the suggested modification of the reference does not teach all of the limitations set forth in the claims. As noted previously, Frescura does not disclose "a second surface adjacent the heat source" with respect to independent claims 1 and 14. Modifying Frescura to change the shape of openings in the film 41, or to substitute other materials for the film 41, does not provide "a second surface adjacent the heat source" as claimed by the Applicant. In fact, Frescura teaches away from any modification to provide this element, as such would prohibit the assembly of the module 11.

It is respectfully noted that references must be considered in their entirety, including parts that teach away from the claims. See MPEP § 2141.02. The fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 16 USPQ2d 1430 (Fed. Cir. 1990); *M.P.E.P.* § 2143.01. Since Frescura teaches away from the claimed combination, there is no motivation to modify the reference as suggested by the Office. Further, the use of unsupported assertions in the Office Action does not satisfy the explicit requirements needed to demonstrate motivation as set forth by the *In re Sang Su Lee* court. Therefore, the Examiner appears to be using personal knowledge, and is respectfully requested to submit an affidavit as required by 37 C.F.R. § 1.104(d)(2).

In summary, the suggested modification of the reference neither teaches nor suggests the element of "a second surface adjacent the heat source" with respect to independent claims 1 and 14, as claimed by the Applicant. Thus, the requirements of *M.P.E.P.* § 2142 have not been satisfied; and a *prima facie* case of obviousness has not been established with respect to the Applicant's claims. This conclusion also applies to dependent claims 5-6, 11-12, and 16, since

any claim depending from a nonobvious independent claim is also nonobvious. See M.P.E.P. § 2143.03. It is therefore respectfully requested that the rejection of claims 5-6, 11-12, and 16 under 35 U.S.C. § 103 be reconsidered and withdrawn.

CONCLUSION

The Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone the Applicant's attorney at (210) 308-5677 to facilitate prosecution of this Application. If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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